



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ :		A1	(11) International Publication Number:	WO 00/19996
A61K 31/203, 9/10, 9/16			(43) International Publication Date:	13 April 2000 (13.04.00)
<p>(21) International Application Number:</p> <p>(22) International Filing Date:</p> <p>(30) Priority Data:</p>		PCT/KR99/00589 29 September 1999 (29.09.99) 1998/41426 1 October 1998 (01.10.98) KR	<p>Yido-dong, Yongdungpo-ku, Seoul 150-010 (KR). KIM, Chul-Hee [KR/KR]; Chungku Apt. 210-1050, Yangjimaeul, Soonae-dong, Bundang-ku, Sungnam-shi 463-020 (KR).</p> <p>(74) Agent: CHOI, Kyu-Pal; 824-20, Yeoksam-dong, Gangnam-ku, Seoul 135-080 (KR).</p> <p>(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p>	
<p>(71) Applicants (for all designated States except US): KWANGJU INSTITUTE OF SCIENCE AND TECHNOLOGY [KR/KR]; 572, Ssangam-dong, Kwangsan-ku, Kwangju 506-712 (KR). SHIN POONG PHARMACEUTICAL CO., LTD. [KR/KR]; 434-4, Moknae-dong, Ansan-shi, Kyunggi-do 425-100 (KR).</p> <p>(72) Inventors; and</p> <p>(75) Inventors/Applicants (for US only): BYUN, Young-Ro [KR/KR]; Keumkwang Apt. 103-1305, Wallgae-dong, Kwangsan-ku, Kwangju 506-302 (KR). KIM, Sang-Yoon [KR/KR]; Woosung Apt. 3-707, Daechi 3-dong, Gangnam-ku, Seoul 135-283 (KR). KIM, Sun-Hee [KR/KR]; Woosung Apt. 3-707, Daechi 3-dong, Gangnam-ku, Seoul 135-283 (KR). CHOI, Yong-Doo [KR/KR]; Jeungheung Park 2-1508, Nongsung 1-dong, Seo-ku, Kwangju 502-201 (KR). HAN, In-Suk [KR/US]; G 105-1025 East Olympic Lease Core, Salt Lake City, UT 84117 (US). LEE, Kwang-Sun [KR/KR]; Kwangjang Apt. 3-605,</p>				
<p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>				
<p>(54) Title: CONTROLLED DRUG RELEASE SYSTEM OF RETINOIC ACID</p>				
<p>A</p> <p>B</p> <p>C</p> <p>D</p>				
<p>(57) Abstract</p> <p>The present invention relates to a controlled drug release system in which a certain ratio of retinoic acid is incorporated into a microsphere comprising biodegradable polymer and amphoteric block copolymer having both hydrophilic and hydrophobic groups.</p>				